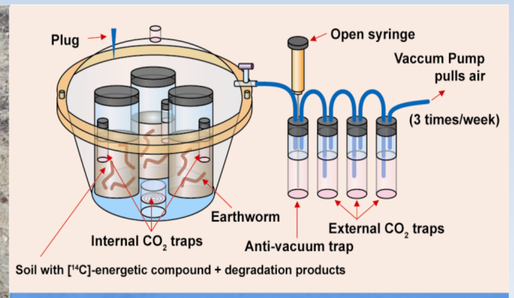
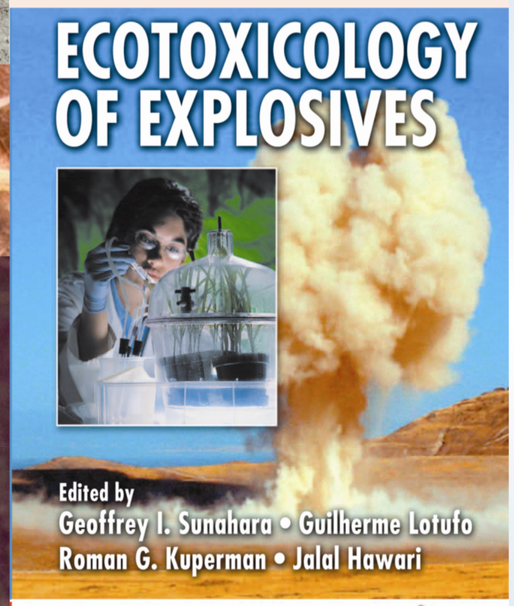
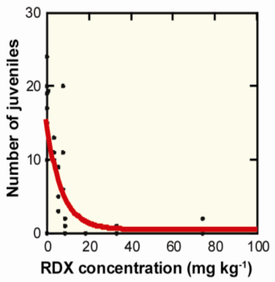
Environmental Tolerance Values for Defense Sites Contaminated with Energetic Materials

WPN TP-4/Energetic Materials and Propulsion/Environmental Aspects of EM





Illustrations show soil invertebrates and plants used in bioassays to establish toxicity benchmarks



Environmental Tolerance Values (mg/kg)

Ecological Group	RDX	HMX	TNT	2,4 DNT	2,6 DNT	TNB	2-A DNT	4-A DNT	NG
Terrestrial Plants	36	NT	14	12	5	9	14	33	21
Soil Invertebrate	51	16	15	23	7	18	43	18	13

Objective: Development of scientifically-based Environmental Tolerance Values (ETVs) for explosives, propellants, and related energetic materials (EM) for use in Ecological Risk Assessments (ERA) at testing and training ranges on defense installations in TTCP nations. Development of bioaccumulation data for estimating the risks of food chain transfer of nitramine explosives to wildlife and other higher-trophic-level receptors at EM-contaminated sites.

Payoff: The ETVs and bioaccumulation data were developed for use by site managers as decision making tools to assess the exposure risks at each site, and to ensure the management of these facilities as sustainable resources. The use of ETVs early in the stages of ERA can shorten a long list of chemicals of potential concern to a smaller list of onsite contaminants on which the risk assessment will focus, thus producing immediate significant cost savings plus potential additional cost savings at later management stages.

DSTO BRI/NRC DSTL ECBC

Participants:

The award is made for significant contributions to collaborative research to advance knowledge and understanding of ecotoxicology of energetic materials and to improve the ecological risk assessment of testing and training ranges at defense installations in TTCP nations. Scientifically-based Environmental Tolerance Values (ETVs) and bioaccumulation data for explosives, propellants, and related energetic materials were developed in this project for use by site managers as decision making tools to assess the exposure risks at each site, and to ensure the management of these facilities as sustainable resources. The data developed in this project have been made internationally available to TTCP nations by publication of the book "Ecotoxicology of Explosives." Sharing of scientific expertise led to successful collaborative studies as evidenced by the joint publications in multiple

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